

# **EXHIBIT 22**













## Erbium & Ytterbium Co-Doped Fibers



Our Erbium & Ytterbium Co-Doped Fibers combines the mixture of Erbium and Ytterbium in a single fiber to help extend absorption bands for doped fibers.

- Extremely High Pump Absorption for Short Length Amplifiers
- All-Silica Design Engineered for Environmental Stability
- Easy to Strip, Cleave, and Splice

## Ordering Information

Compare	Model	Drawings, Index CAD & Specs Profile	Fiber Type	Mode Field Diameter, Nominal	Core Diameter	Availability	Price
 (/p/F-CP1500Y)	<b>F-CP1500Y (/p/F-CP1500Y)</b> Er-Yb Co-doped Optical Fiber, Dual Cladding	 	Erbium-Ytterbium Co-doped	5.6 - 6.4 @1550 nm $\mu\text{m}$		<b>In Stock</b>	<b>\$161.00</b>
 (/p/F-DF1500Y)	<b>F-DF1500Y (/p/F-DF1500Y)</b> Co-doped Optical Fiber, Erbium-Ytterbium	 	Erbium-Ytterbium Co-doped	5.3 - 6.8 @1550 nm $\mu\text{m}$		<b>In Stock</b>	<b>\$51.00</b>
 (/p/F-MM105)	<b>F-MM105 (/p/F-MM105)</b> Multi-mode Pump Fiber, 105 $\mu\text{m}$ Core, 0.24-0.28 NA	 	Step Multimode		100 - 104 $\mu\text{m}$	<b>2 Weeks</b>	<b>\$10.00</b>
 (/p/F-SMM900)	<b>F-SMM900 (/p/F-SMM900)</b> Dual-Clad Component Optical Fiber, matching F-CP1500Y	 	Fiber laser pump delivery	6.5 - 8.2 @1550 nm $\mu\text{m}$		<b>In Stock</b>	<b>\$27.00</b>

## Features

### Dual-Clad Erbium & Ytterbium Co-Doped Fiber

Unlike other cladding pump or dual-clad fibers, Fibercore’s Dual-Clad Erbium/Ytterbium Doped Fiber (F-CP1500Y) was originally designed as a high-power communications amplifier fiber. The pump light is guided within an all-silica structure, using a fluorinated secondary cladding to create the pump guide boundary, without the need for low index polymers.

### Single Mode Erbium & Ytterbium Co-Doped Fiber

Fibercore’s SM Erbium/Ytterbium Doped Fiber (F-DF1500Y) is a Single-Mode (SM) Erbium (Er) and Ytterbium (Yb) doped fiber, providing extremely high levels of pump absorption and emission around the telecoms C and L band windows. The fiber can be used for lower power fiber lasers, pre-amplifiers and Amplified Spontaneous Emission (ASE) light sources. The high absorption is ideal for applications requiring short gain lengths, for example femtosecond mode-locked ring lasers.

### Applications

- Telecoms
- EDFAs and YEDFAs

### All-Silica Design

The all-silica design means the fiber can be stripped, cleaved and spliced using standard telecoms industry equipment, without the need to recoat the fiber. The all-silica design also gives outstanding power handling across full temperature and humidity ranges, without the reliability problems observed in low index polymer cladding designs.

### Mixture of Erbium & Ytterbium

The mixture of Erbium and Ytterbium extends the 915nm pump absorption band to 980nm with a relatively flat absorption rate until the 980nm peak. This allows low cost, non-stabilized 940nm pumps to be used where variations in the pump wavelength with temperature will have a much smaller effect on the output power than pumping at 980nm.

### Volume Discount

- Cable Television (CATV)
- Fiber Lasers
- Light Radar (LIDAR)

The following volume discount schedule is automatically applied when ordering continuous lengths of bare optical fiber >10m:

- 11 - 50 m - 15 %
- 51- 100 m - 22 %
- 101- 500 m - 25 %
- > 501 m - 28 %.

Discount applicable to continuous length of fiber only



### Related Products



(/f/ytterbium-doped-fibers)

**Ytterbium Doped Fibers**  
(/f/ytterbium-doped-fibers)



(/p/F-DHB1500)

**Polarization Maintaining Optical Fiber, Erbium Doped, PM EDFAs**  
(/p/F-DHB1500)



(/f/erbium-doped-fibers)

**Erbium Doped Fibers**  
(/f/erbium-doped-fibers)



(/p/F-DF1000)

**Neodymium Doped Optical Fiber, Fiber Lasers**  
(/p/F-DF1000)